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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/054,241 | 01/22/2002 | John K. Walton | EMC2-078AUS | 4075 |

22494 7590 02/23/2004

DALY, CROWLEY & MOFFORD, LLP
SUITE 101
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CANTON, MA 02021-2310

EXAMINER

ELAMIN, ABDELMONIEM I

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2182

DATE MAILED: 02/23/2004

22

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/054,241

Applicant(s)

WALTON ET AL.

Examiner

A I Elamin

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-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-59 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 11-59 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 19, 20.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Murata et al, US. Pat. No. 5,286,511 (cited by Applicant).

3. Claims 11, 20, 21, 29, 30, 39, 40, 44 and 48-59, AAPA discloses a data storage system wherein end user data is transferred between a host computer and a bank of disk drives through an interface [*see the specification of the instant application, pages 1-4 & Fig. 1*], such interface comprising;

a memory [*cache memory of Fig. 1*];

a plurality of directors, at least one front end one of said directors being in communication with the host computer [*Front-End Directors Fig. 1*] and at least one rear end one of the directors being in communication with the bank of disk drives [*Rear-End Directors of Fig. 1*];

an interface state data bus section, for carrying interface state data, such interface state data bus section in communication with both the at least one front end one and at least one rear end one of the directors [*see the specification of the instant application, pages 1-4 & Fig. 1*], **however**, AAPA does not explicitly teach a plurality of end user data buses, for carrying end user data, each one of them having a first end coupled to a corresponding one of the plurality of directors and a second end coupled to the memory.

Murata teaches a multiprocessor system comprising a plurality of processors [*processors 1a-1n of Fig. 2*]; a main memory comprising a plurality of memory modules [*memory modules 9a-9n of Fig. 2*]; an interconnection network for selectively connecting the plurality of the processors to the memory modules [*abstract, Fig. 2*].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of AAPA and Murata, because this would increase the system bandwidth [*see Murata, abstract*].

4. As to claims 12, 22 and 31, Murata teaches the end user data buses are serial busses [*see Figs 1-2*].

5. As to claim, 13, 23 and 32, AAPA teaches the interface state data bus section includes parallel busses [*see the specification of the instant application, pages 1-4 & Fig. 1*].

6. As to claim 14, 24 and 33, AAPA teaches coupling parallel busses to the directors in a multi-drop configuration [*see the specification of the instant application, pages 1-4 & Fig. 1*].

7. As to claims 15, 25 and 34, Murata teaches the end user data buses are serial buses [*abstract, Fig. 2*].

8. As to claim 16, 26 and 35, AAPA teaches the parallel busses are coupled to the directors in a multi-drop configuration [*see the specification of the instant application, pages 1-4 & Fig. 1*].

9. As to claims 17-18, 27 and 36-37, Murata teaches a coupling node includes a cross-bar switch [*abstract, Fig. 2*].

10. As to claim 19, 28 and 38, Murata teaches the interface data bus section includes a plurality of parallel buses, each one thereof being coupled to a one of the plurality of directors and to the memory [*abstract, Fig. 2*].

11. As to claim 41-43 and 45-47, Murata teaches the first and the second portions of the end user data buses comprise a plurality of serial buses [*abstract, Fig. 2*].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A I Elamin whose telephone number is (703)305-3804. The examiner can normally be reached on MON-FRI 9:30 AM - 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



A I Elamin

Primary Examiner

Art Unit 2182

A. ELAMIN
PRIMARY EXAMINER

February 20, 2004